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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,863	10/14/2003	Andrew W. Voelkel	AB-117U1	4797

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EXAMINER
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MULLEN, KRISTEN DROESCH

ART UNIT	PAPER NUMBER
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3762

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

8W

# Office Action Summary

Application No.

10/684,863

Applicant(s)

VOELKEL, ANDREW W.

Examiner

Kristen Mullen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-8 is/are rejected.
- 7) ☒ Claim(s) 2,3,10 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/14/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 4-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitation "F(x) " in line 1.

Claim 5 recites the limitation "the compressive mapping " in line 1.

There is insufficient antecedent basis for these limitation in these claims.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 8 is rejected under 35 U.S.C. 102(e) as being anticipated by Zierhofer (5,983,139).

Zierhofer shows an Implantable Cochlear Stimulation (ICS) system including: a microphone (10) a speech processor, and an electrode array (34), wherein the speech processor includes at least one filter (16, 18) and at least one compressive mapping, wherein the microphone converts acoustic energy into an electrical signal, and wherein the at least one filter processes the

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electrical signal to generate at least one filtered signal and wherein the compressive mapping includes means for converting the at least one filtered signal into at least one output signal, wherein the compressive mapping is performed at a reduced rate (Fig. 4; Col. 7, lines 51-58, Col. 8, lines 40-51).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1 and 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zierhofer (5,983,139).

Regarding claim 1, Zierhofer shows an Implantable Cochlear Stimulation (ICS) system including envelope based amplitude mapping, comprising: an implantable part including an electrode array (34); and a speech processor including a microphone (10) and a signal processor, wherein the microphone converts acoustic energy into an electrical signal provided to the signal processor, and wherein the signal processor includes means for filtering (16, 18) the electrical signal to generate at least one filtered signal, means for computing at least one envelope signal from the at least one filtered signal, means for computing at least one decimated signal; and means for computing at least one mapped signal from the at least one decimated signal, and means for computing at least one output signal from the at least one mapped signal and the at least one filtered signal (Fig. 4; Col. 7, line 33-Col. 9, line 40).

However, Zierhofer fails to show means for computing at least one decimated signal from the at least one signal envelope, but rather shows means for computing an envelope signal from a decimated signal. It has long been held that rearrangement of parts is a matter of obvious design choice. *In re Japiske*, 181 F.2d 1019 (C.C.P.A., 1950). Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to rearrange the means for computing with the means for decimating.

Regarding claims 4-5, Zierhofer further shows a compressive log mapping of the envelope signal (Col. 8, lines 40-51).

With respect to claim 6, Zierhofer further shows the means for filtering the electrical signal comprises a family of at least one parallel band pass filter (18).

Regarding claim 7, although Zierhofer further shows it is well known to use a full wave rectifier followed by a low pass filter as a means for computing the envelope signal (Col. 1, lines 29-31).

***Allowable Subject Matter***

7. Claims 2-3, and 9-11 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Regarding claim 2, the prior art of record fails to teach or suggest an Implantable Cochlear Stimulation (ICS) system including envelope based amplitude mapping, comprising: an implantable part including an electrode array; and a speech processor including a microphone and a signal processor, wherein the microphone converts acoustic energy into an electrical signal provided to the signal processor, and wherein the signal processor includes means for filtering

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the electrical signal to generate at least one filtered signal, means for computing at least one envelope signal from the at least one filtered signal, means for computing at least one decimated signal from the at least one signal envelope; and means for computing at least one mapped signal from the at least one decimated signal, and means for computing at least one output signal from the at least one mapped signal and the at least one filtered signal comprises multiplying the at least one mapped signal times the electrical signal to generate an output signal for the electrode array.

With respect to claim 3, the prior art of record fails to teach or suggest an Implantable Cochlear Stimulation (ICS) system including envelope based amplitude mapping, comprising: an implantable part including an electrode array; and a speech processor including a microphone and a signal processor, wherein the microphone converts acoustic energy into an electrical signal provided to the signal processor, and wherein the signal processor includes means for filtering the electrical signal to generate at least one filtered signal, means for computing at least one envelope signal from the at least one filtered signal, means for computing at least one decimated signal from the at least one signal envelope; and means for computing at least one mapped signal from the at least one decimated signal comprises a mapping function  $F'(x) = F(x)/x$  and where  $x$  is the decimated signal and  $F(x)$  is the desired mapping between the filtered signal and the output signal, and means for computing at least one output signal from the at least one mapped signal and the at least one filtered signal in combination with

Regarding claim 9, the prior art of record fails to teach or suggest an Implantable Cochlear Stimulation (ICS) system including: a microphone, a speech processor, and an electrode array, wherein the speech processor includes at least one band pass filter and at least

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one compressive mapping, wherein the microphone converts acoustic energy into an electrical signal, and wherein the at least one filter processes the electrical signal to generate at least one filtered signal and wherein the compressive mapping includes means for converting the at least one filtered signal into at least one output signal, in combination with the compressive mapping is performed at a reduced rate, in combination with the compressive mapping comprising envelope based compressive mapping including at least one envelope detector, at least one decimator, at least one compressive mapper, and at least one multiplier, and where the at least one envelope detector converts the at least one filtered signal into at least one envelope signal, and wherein the at least one decimator converts the at least one envelope signal into at least one decimated signal, wherein the at least one decimated signal is at a lower data rate than the at least one envelope signal, and wherein the compressive mapper converts the at least one decimated signal into at least one mapped signal, and wherein the multiplier multiplies the at least one mapped signal times the at least one electrical signal to generate the at least one output signal.

With respect to claims 10-11, the prior art of record fails to teach or suggest an Implantable Cochlear Stimulation (ICS) system including: a microphone, a speech processor, and an electrode array, wherein the speech processor includes at least one band pass filter and at least one compressive mapping, wherein the microphone converts acoustic energy into an electrical signal, and wherein the at least one filter processes the electrical signal to generate at least one filtered signal and wherein the compressive mapping includes means for converting the at least one filtered signal into at least one output signal, wherein the compressive mapping is performed at a reduced rate in combination with the compressive mapping comprising a second bin averager, a third bin averager, a log mapper, and a multiplier; where the second bin averager

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averages the filtered signal to generate a second averaged signal, the third bin averager averages the second averaged signal to generate a third averaged signal; the log mapper compressively maps the third averaged signal to generate a mapped signal; and the multiplier multiplies the mapped signal times the second averaged signal to generate the output signal.

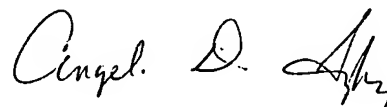
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kristen Mullen whose telephone number is (571) 272-4944. The examiner can normally be reached on M-F, 10:30 am-6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Sykes can be reached on (571) 272-4955. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kdm



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